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QUALCOMM INCORPORATED
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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte LIN YANG, YOUHAN KIM, SAMEER VERMANI,
TEVFIK YUCEK, and HEMANTH SAMPATH

_____

Appeal 2016-002908
Application 13/887,848[1]
Technology Center 2600

_____

Before MICHAEL J. STRAUSS, AMBER L. HAGY, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

ENGLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of
claims 1–15. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Technology

The application relates to wireless communication in sub-gigahertz
bands. Spec. ¶ 2.

Representative Claim

Claim 1 is representative and reproduced below with the limitations at
issue emphasized:

_____

[1] Appellants state the real party in interest is Qualcomm Inc. App. Br. 3.

1. An apparatus for wireless communication, comprising:

a processor configured to generate a packet for transmission via a wireless signal, wherein the packet is generated for transmission over *a bandwidth of 1 MHz* using at least one orthogonal frequency-division multiplexing (OFDM) symbol; and

a transmitter configured to transmit the packet via the wireless signal having a power spectral density, wherein:

the power spectral density within ±0.45 MHz of a center frequency of the wireless signal is at a first power spectral density level;

the power spectral density between 0.45 MHz and 0.6 MHz from the center frequency of the wireless signal and between -0.45 MHz and -0.6 MHz from the center frequency of the wireless signal is less than the first power spectral density level;

the power spectral density between 0.6 MHz and 1 MHz from the center frequency of the wireless signal and between -0.6 MHz and -1 MHz from the center frequency of the wireless signal is less than -20 dBr with respect to the first power spectral density level;

the power spectral density between 1 MHz and 1.5 MHz from the center frequency of the wireless signal and between -1 MHz and -1.5 MHz from the center frequency of the wireless signal is less than -28 dBr with respect to the first power spectral density level; and

the power spectral density of greater than ±1.5 MHz from the center frequency of the wireless signal is less than -40 dBr with respect to the first power spectral density level.

Rejections

Claims 1–14 stand rejected under 35 U.S.C. § 103(a) as obvious over Stacey et al., *Proposed TGac Draft Amendment*, IEEE 802.11-10/136r1 (Nov. 11, 2010). Final Act. 10.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as obvious over Stacey and Lee et al. (US 2010/0136903 A1; June 3, 2010). Final Act. 21.

ANALYSIS

Claims 1–5 & 13–15

Claim 1 recites "a bandwidth of 1 MHz" with certain power spectral densities (e.g., "less than -28 dBr") over specific MHz ranges (e.g., "between 1 MHz and 1.5 MHz from the center frequency"). The prior art Stacey teaches substantially the same pattern of decreasing power spectral densities as Figure 10A of the present application, only scaled to a bandwidth of 20 MHz rather than 1 MHz. Ans. 18 (comparing Spec. Fig. 10A with Stacey Fig. 22-17).

The Examiner concludes scaling Stacey from 20 MHz to 1 MHz renders claim 1 obvious because

> Applicant merely claims complying with the requirements of the transmission mask. To achieve this, i.e., to comply with the transmission requirements, one of ordinary skill, using the transmission mask, is inherently obligated to alter the transmitting signals by varying power of transmitting signal, based on the design requirements, as claimed. This means: comparing the frequency and power of each carrier frequency with the transmission mask requirement and varying the carrier power, accordingly.
> Therefore, the Applicant's claims ha[ve] been interpreted as an obvious procedure of varying the "signal power" of the carrier frequencies, according to the relationship between the transmission mask and the carrier frequencies, based on the design requirements, in order to avoid signal transmission power to surpass those limit[s] set by the transmission mask.

Ans. 19–20, 5.

Appellants argue the Examiner has essentially taken "official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known." App. Br. 10. We are not persuaded by Appellants' argument.

The Examiner finds claim 1 obvious based on the direct relationship between varying frequency and power. Ans. 19–20. Such a relationship can be seen in both Stacey and the present application. For example, Appellants note "Stacey generally describes the use of 20 MHz, 40 MHz, 80 MHz, and 160 MHz signals." App. Br. 10 (citing Stacey 99). Stacey discloses a direct relationship between channel frequency and spectral mask inflection points such that, for example, when the channel bandwidth doubles (e.g., from 20 MHz to 40 MHz), the spectral density doubles as well (e.g., -28 dBr at 20 MHz becomes -28 dBr at 40 MHz, and -40 dBr at 30 MHz becomes -40 dBr at 60 MHz). Stacey 99–101. The present application provides the same scaling, such as claim 1 having "a bandwidth of 1 MHz" and a power spectral density level "less than -28 dBr" within the range "1 MHz and 1.5 MHz," whereas claim 2 doubles the bandwidth ("a bandwidth of 2 MHz") and accordingly doubles the range (e.g., "between 2 MHz and 3 MHz" for power spectral density "less than -28 dBr"). Spec. at claims 1–5. Thus, Appellants disclose the same scaling relationship at lower bandwidths (e.g., "for 1 MHz, 2 MHz, 4 MHz, 8 MHz, and 16 MHz") as Stacey does for higher bandwidths (e.g., 20 MHz, 40 MHz, 80 MHz, and 160 MHz). Spec. ¶ 22; Stacey 99–101.

Appellants contend "[s]uch lower bandwidths introduce different designs concerns" (App. Br. 11–12), yet this argument is not persuasive because Appellants do not identify any specific design concern. *See In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (requiring more explanation than a "naked assertion"). Nor have Appellants provided any reason why a person of ordinary skill in the art would have expected Stacey's scaling to be any different in lower bandwidths or otherwise yield unexpected results. As

the Supreme Court has held, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

The Federal Circuit's predecessor court has said "it is clear that mere scaling up of a prior art process capable of being scaled up . . . would not establish patentability in a claim to an old process so scaled." *In re Rinehart*, 531 F.2d 1048, 1053 (CCPA 1976). Given the record before us, Appellants have not sufficiently persuaded us the Examiner erred in finding Stacey renders scaling obvious based on the design requirements of the application.

Appellants further argue "if one skilled in the art down-scaled Stacey's 20 MHz signal to a 1 MHz signal, the result would be a 1 MHz transmission using a frequency offset of ±0.55 MHz" rather than the claimed ±0.6 MHz. App. Br. 12. However, this argument is not commensurate with the scope of the claim. Claim 1 recites "the power spectral density between 0.45 MHz and 0.6 MHz . . . is *less than the first power spectral density level* [i.e., the level from the center frequency to 0.45 MHz]." A down-scaled version of Stacey meets this limitation. Specifically, as shown in Figure 22-17, Stacey's power spectral density from 9–12 MHz (which, when divided by 20, down-scales to the claimed 0.45–0.6 MHz) is "less than" the power spectral density from the center frequency to 9 MHz (which down-scales to 0–0.45 MHz). Stacey 99. Claim 1 further recites "the power spectral density between 0.6 MHz and 1 MHz . . . is *less than -20 dBr* with respect to the first power spectral density level." Spec. at claim 1 (emphasis added). Again, a down-scaled version of Stacey meets this limitation. In Figure 22-

17, the power spectral density from 12–20 MHz (which, when divided by 20, down-scales to the claimed 0.6–1 MHz) is "less than -20 dBr." *Id.* Thus, a down-scaled version of Stacey meets the claimed limitations. Appellants' argument concerning the "technical benefits" of 0.6 MHz over 0.55 MHz (App. Br. 12 & n.1) are not relevant to the obviousness of the only modification of Stacey needed, which is scaling.

Accordingly, we sustain the Examiner's rejection of claim 1, and claims 2–5 and 13–15, which Appellants argue are patentable for similar reasons. *See* App. Br. 13–16; 37 C.F.R. § 41.37(c)(1)(iv).

Claims 6–12

In addition to the arguments related to claim 1 above, Appellants further contend "the Office Action explicitly acknowledges that Stacey does not disclose such specific parameters" as dependent claims 6–12. App. Br. 16–17. Yet the Examiner relies not only on Stacey's express disclosure but also on the scaling modification of Stacey. Ans. 7–15. Appellants' argument fails to meaningfully address the Examiner's proposed modifications. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

Accordingly, we sustain the Examiner's rejection of claims 6–12.

DECISION

For the reasons above, we affirm the Examiner's decision rejecting claims 1–15.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 41.50(f).

AFFIRMED